REMARKS

This application has been reviewed in light of the Office Action dated June 18, 2003. Claims 10-12, 17-19, 21, 32, 34, and 37-40 are pending in this application. Claims 20, 31, and 33 have been cancelled, without prejudice or disclaimer of subject matter. Claims 11 and 21, which are the independent claims, have been amended to define still more clearly what Applicants regard as their invention, in terms that distinguish over the art of record. Favorable reconsideration is requested.

The Office Action rejected Claims 10-12, 17-21, 31-34, and 37-40 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,148,048 (Takemoto et al.), in view of Applicants' Prior Art Admissions. Cancellation of Claims 20, 31, and 33 renders their rejections moot.

Applicants submit that amended independent Claims 11 and 21, together with the remaining claims dependent thereon, are patentably distinct from the proposed combination of the cited prior art at least for the following reasons.

The aspect of the present invention set forth in Claim 11 is a solid-state imaging device having a first color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, and a second color picture cell array which contains picture cells having a photo-electric converting element for converting incident light to electric signals arranged two-dimensionally, placed in juxtaposition on a substrate.

The first and second color picture cell arrays are provided with their respective color filters of a single color and focusing lens. The substrate is formed from a material having a first conductivity type and has a common well formed therein from a material having the opposite conductivity type to the substrate, the common well having a

doped region therein of the same conductivity as the common well. The well contacts and well wiring are provided on regions of the common well which regions are peripheral ones bordering on their respective at least three sides of each of the first and second color picture cell arrays. A number of the sides of each color picture cell arrays is the same as one another, and the well-contacts are connected to the doped region.

Notable features of Claim 11 are that the first and second color picture cell arrays are provided with their respective color filters of a single color and focusing lens, the well contacts and well wiring are provided on regions of the common well which regions are peripheral ones bordering on their respective at least three sides of each of the first and second color picture cell arrays, and a number of the sides of each color picture cell arrays is the same as one another.

Applicants submit that the solid-state imaging device as recited in Claim 11 is fabricated by a processed comprised of juxtaposing a plural area sensor arrays on the substrate, providing a filter of a single color on each of the sensor arrays and a lens for focusing an image of an object on each of the sensor blocks. The imaging device runs in a manner of combining color signals outputted from each of the blocks to form an image signal. With these features, the color signals to be combined exist at intervals from each other in the combining step because a group of pixels having the same coordinates in their respective area sensor arrays consists of an object of arithmetic processing. In addition, with these features, the influence of shading caused by a potential gradient in the common well is prevented.

Takemoto et al., as understood by Applicants, relates to a solid-state imaging device. Takemoto et al. discusses pixels of a conventional general area sensor from which color signals to be combined are outputted adjacent to each other because such

a conventional device employs generally a color filter in which a set of RGB is formed on every pixel in one area sensor. Consequently, states of well potentials formed therein are little different from each other. In contrast, in the solid state device as recited in Claim 11, since the pixels to be processed exist at intervals from each other, it is necessary to make potentials of the well of the pixels almost accord with one another. Applicants have found that it is necessary to make well-potential distribution patterns of area sensor arrays accord with each other (see enclosed Figure A, for example) and that it is important for realizing the accordance of the patterns to provide the well contacts on peripheral regions of the common well which regions correspond to at least three sides of each of the color picture cell arrays wherein a number of the sides of each color picture cell arrays is the same as one another.

Applicants submit that a conventional structure of a solid-state device where well contacts are provided on peripheral regions corresponding to only two sides of each of the color picture cell arrays provides such a well-potential pattern as shown in enclosed Figure B. Such a pattern makes well potentials of pixels to be arithmetically processed undesirably different from each other, which allows outputted signals to vary. Consequently, undesirable color shifting is caused. In contrast, in the structure of a solid-state device as recited in Claim 11, it is possible to not only prevent almost the shading of the entire sensor but also to make the tendency of minute shading in each area block accord with each other. Consequently, an image signal can be formed without undesirable color shifting in the step of arithmetically processing color signals from pixels at intervals from each other.

Applicants submit that nothing has been found in Takemoto et al. or Applicants Admitted Prior Art, when taken separately or in combination, that would teach

or suggest a solid-state device that includes the features of the first and second color picture cell arrays being provided with their respective color filters of a single color and focusing lens, well contacts and well wiring being provided on regions of the common well which regions are peripheral ones bordering on their respective at least three sides of each of the first and second color picture cell arrays, and a number of the sides of each color picture cell arrays is the same as one another, as recited in Claim 11.

Accordingly, Applicants submit that at least for these reasons, Claim 11 is patentable over the cited prior art.

Independent Claim 21 includes features similar to Claim 11 as discussed above. Accordingly, Claim 21 is believed to be patentable for at least the same reasons as discussed above in connection with Claim 11.

The other rejected claims in this application depend from one or another of the independent claims discussed above, and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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